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| Name: Lindy McCollam  Date: April 10, 2013 Lesson Title: Median, Mode and Range Grade/Level: Fifth Grade |
| Curriculum Standards |
| *TN State Standards*  **Math**  SPI 0506.5.3 Calculate measures of central tendency to analyze data.  *Common Core Standards*  **Reading/Language Arts**  5.RIT.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. |
| Focus Questions/Big Idea/Goal (List all 3) |
| **Focus Question(s):** What are some ways to describe a set of data?  **Big Idea(s):** Students can use different measures to describe the center of a numerical data set. Each measure is most appropriate depending on characteristics of the data.  **Goal(s):** Students will know how to find the median, mode, and range in a set of data. |
| Lesson Objective(s) |
| * Students will be able to find the median, mode, and range of data sets. |
| Vocabulary/ Academic Language |
| * Median: the number in the middle of the data when the data are listed in order from least to greatest * Mode: the number in a set of data that appears most often * Range: the difference between the greatest and the least values in a data set   The teacher will introduce the vocabulary at the beginning of the lesson through a PowerPoint. The students will be using the vocabulary through the whole lesson. |
| Material/Resources |
| * PowerPoint * Mini Skittle Bags * Learning Logs |
| Assessment/Evaluation |
| **Formative:**   * The teacher will pre-assess what the students learned from the day before about mean by having them relate it to a real world situation of describing a “typical” fifth grader and how they decided. * The teacher will be walking around as the students are working on the skittle activity. The teacher will ensure that students are showing their work to prove their mastery of the skills.   **Summative:**   * The teacher will grade the skittle activity that the students will record in their learning log. The teacher will be looking to see that the students showed their work to justify their understanding of how to find the mean, median, mode, and range. * The teacher will collect the exit slips at the end of the period. This will allow the teacher to know the mastery level for each student. If there are students who do not fully grasp the idea, the teacher will then provide addition work for the student to help master or to have one-on-one time with those students. |

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| Instruction  (Include a suggested time for each major activity) | List Questions for higher order thinking *These cannot be answered by yes or no.*  (Identify Bloom’s Level of Thinking) | |
| **Set/Motivator: (10 minutes)**   1. The teacher will say, “You have used the mean, or average, to describe a set of data. Today you will learn other ways to describe a set of data. Who can tell me what I mean when I say the mean of a set of data?” 2. The teacher will allow time for students to answer. The teacher will then ask, “How could you describe a “typical” fifth-grader?” The teacher will want to gear responses to characteristics such as height and answers like taking a survey. 3. The teacher will make the connect to mean by asking, “How would you decide what is typical?” Allow time for student’s responses. | | 1. What statements support what you believe to be a typical fifth grader? *[Level 2: Comprehension]* 2. What approach would you use to test your opinion to see if it were true or not? *[Level 3: Application]* |
| **Instructional Procedures/Learning Tasks: (30 minutes)**   1. The teacher will share the prepared PowerPoint, which will introduce the vocabulary as well as model how median, mode, and range should be used. The class will work on a problem as a whole once vocabulary has been introduced. 2. The teacher will give students a problem to work with their partner. The teacher will say, “Work with your partner to find the median, mode, and range of this set of data: 9, 3, 5, 6, 4, 8, 5. 3. The teacher will then challenge the students to work out a problem on their own. The teacher will say,” Make up a set of five numbers that has a median of 7 and a mode of 5. Find the mean.” 4. The teacher will show a sample answer of 5, 5, 7, 8, 9 with a mean of 6.8 on the board. 5. The students will then work on the problem independently. 6. Once the students have finished the problem, the teacher will call on students to share the answers they came up with. 7. The teacher will give each student a small bag of skittles and advise them not to open them until told to. 8. The teacher will then explain that, when given the okay, they will open the bag of skittles and count how many they have. The teacher will then break students into groups of four to work together. 9. The students will gather the data of how many skittles each of them had in their bag. With this data, the students will then find the mean, median, mode, and range from this information. This will be recorded in their math journal. | | 1. How would you apply what you’ve learned today in a real life situation? *[Level 3: Application]* 2. What conclusions can you draw from gathering data and finding the median, mode, and range? *[Level 4: Analysis]* |
| **Closure: (10 minutes)**   1. The teacher will review the new vocabulary/skills with the students. The teacher will ask students what mean, median, mode, and range mean. 2. The students will then need to write an example of a data set and show the mean, median, mode, and range on a scrap piece of paper. 3. Students will also include a self reflection of how they feel about the new material by writing a number between 1-5 (1 being poor and 5 being mastered). This will become their exit ticket. 4. When the students line up at the door, the teacher will read each students exit slip. | | 1. What judgment would you make about a data set to know if it would be beneficial to use the mean, median, mode, and range? *[Level 6: Evaluation]* |

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| **Adaptations to Meet Individual Needs:   Special Adaptations** Ben has a hearing impairment with his left ear, but he wears a hearing aid. The teacher will need to be sure to be placed in a position of the room that is beneficial for Ben to hear him/her best. The teacher will also need to keep an eye on Ben to be sure that he isn’t straining to hear the lesson.  Kevin has an audible tic that fluctuates on how severe it can be. Some days it can be severe while other days he may not really do it at all.  **Howard Gardner’s Learning Styles** **Visual-Spatial:** Students will be watching the teacher work through examples on the PowerPoint. **Bodily-Kinesthetic:** Students will be using skittles as a hands-on activity to help them do a problem with mean, median, mode, and range. **Musical:** There is no music involved in this lesson. **Interpersonal:** The teacher will conduct a class discussion about what each word means as well as working through problems. Students will also be working in groups to bring their data together and come up with the mean, median, mode, and range for the data. **Intrapersonal:** Students will have to perform some problems independently. **Linguistic:** Students will be given responses orally during class discussion as well as when students are called on to answer. **Logical-Mathematical:** Students will have to relate mathematical problems to real life situations.  **Management/Safety Issues:**   * The teacher will need to ensure that there are no allergies to skittles. |
| Rationale/Theoretical Reasoning:  Jerome Bruner emphasized the importance of understanding the structure of a subject being studied and the need for there to be active learning in order to have true understanding. When the students have to use higher order of thinking by coming up with their own set of data, it has the student’s use active learning. Students are given an example of how they can create a set from the data provided, but they had to come up with additional ones on their own. This allows students to show if they have a true understanding over the material.  The students are currently in Jean Piaget’s fourth level of development, which is when students are able to solve abstract problems and develop concerns about social issues. The students have to solve an abstract problem when they have to come up with their own data sets. Students make real life connections at the beginning of the lesson when they have to come up with what a “typical” fifth grade would be like. They have to use their abstract thinking in order to make the connection to the math material presented. The teacher can help students achieve this by offering them engaging questions that will gear their thinking in the right direction. |
| References:  enVision Math. *Median, Mode, and Range* pp. 452A-B. (2011). Pearson Education, Inc.: United States of America. |
| Reflections/Future Modifications:  I only presented the beginning of this lesson to the class, and it was the first time they were learning this information. I feel as though the students had a lot of prior knowledge over the material that was presented in class (median, mode, and range). While we were going over things as a class, it seemed apparent that the students knew what they were talking about. Once students had to work on their own and create their own set of data, it became apparent that while students knew what each of them were, it became confusing trying to connect which definition went with which word. Even while they confused the definitions sometimes, they were always able to immediately bounce back and make the right correction.  I would be interested in carrying out this lesson completely and being able to have my summative assessment over this material. This would allow me to see on a personal level how each person was able to master the content. There were some students that I was able to notice through walking around the classroom that they made not have picked up on it as much as other students. My next step for these instructions would be have a form of a summative assessment so that I would be able to know how the students did. If they were not able to all master the content, then it would be something that we would have to revisit so that I could reteach the areas of struggle. If students were able to master the content, then we would make real world connections to the material.  I learned that the students within my classroom are extremely smart, and they are capable and willing to learn anything. This is a great class that is able to explain how they got the answers they got, which will allow for them to attain so much of the information they learn. While they have moments where they can potentially get a little loud, if you stay on top of them then they will stay on task. These students are respectable and as long as you are able to remain in control, then you are able to accomplish a lot of great things with them.  As a teacher, I have learned that I really need to work on my timing. As a new teacher, I already knew this was something that I had to be careful of because it can be hard until you create a natural flow over time. I haven’t noticed it in the past so much when it came to teaching literature and language, but when I taught math today I knew that it is something that I need to work on. It is easy to spend too much time on something in math because it is a harder concept for most students to grasp. |